



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,203	08/17/2005	Stefan Beichl	5038.1004	6597

23280 7590 09/18/2007  
DAVIDSON, DAVIDSON & KAPPEL, LLC  
485 SEVENTH AVENUE, 14TH FLOOR  
NEW YORK, NY 10018

EXAMINER
----------

LEE, GILBERT Y

ART UNIT	PAPER NUMBER
----------	--------------

3673

MAIL DATE	DELIVERY MODE
-----------	---------------

09/18/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,203	<b>Applicant(s)</b> BEICHL, STEFAN	
	<b>Examiner</b> Gilbert Y. Lee	<b>Art Unit</b> 3673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 20-36 is/are pending in the application.
- 4a) Of the above claim(s) 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20-23 and 25-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

1. The amendment filed 6/28/07 has been entered.

### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the separation site having an overlapping form as claimed in claim 36 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

Art Unit: 3673

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 21-23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The term "closed-type" and "open-type" brush seal is not enabled in the specification. The closest descriptions of the two types are in paragraphs [0031] and [0032] which hint that an open-type design has a fastening ring which is a single piece with the housing.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 20-23 and 25-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 20-23 and 25-35 recite "axially symmetrical components". It is unclear from the disclosure and the drawings as to what is being claimed. For the purposes of this examination, the examiner is interpreting "axially symmetrical components" to be claiming that one component is encircled by another component.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. As best understood, claims 20-23, 25, 27, and 30-36 are rejected under 35 U.S.C. 102(b) as being anticipated by Turnquist et al. (US Patent No. 6,105,967).

Regarding claim 20, the Turnquist et al. reference discloses a sealing arrangement (Fig. 1), comprising:

at least one first sealing device (e.g. 38) including an annular seal (e.g. 44);

a second sealing device (e.g. 36) including a brush seal (e.g. 36);

wherein the first and second sealing devices are placed between axially symmetrical components (e.g. 12, 14, or 10) symmetrical about an axis (Fig. 1), and the second sealing device is positioned so as to be axially offset from the first sealing device (Fig. 1); and

wherein the annular seal is a metallic piston ring seal (Fig. 1) having a separation site (Col. 4, Lines 54-66).

Regarding claim 21, the Turnquist et al. reference, as best understood, discloses the brush seal being a closed-type brush seal (Fig. 1).

Regarding claim 22, the Turnquist et al. reference, as best understood, discloses the brush seal being an open-type brush seal (Fig. 1).

Regarding claim 23, the Turnquist et al. reference, as best understood, discloses the open-type brush seal being a split ring (Col. 4, Lines 54-66).

Regarding claim 25, the Turnquist et al. reference, discloses the brush seal including a plurality of bristle elements (Col. 4, Lines 28-30).

Regarding claim 27, the Turnquist et al. reference discloses one end (e.g. upper end of element 36) of the second sealing device being positioned in a recess (e.g. recess of element 12 holding element 14) of a first one of the axially symmetrical components (Fig. 1).

Regarding claim 30, the Turnquist et al. reference discloses the bristle elements being radially preloaded such that they have a curved shape in the radial direction (Fig. 1). Note that the bristles of the Turnquist et al. reference will be preloaded because they are designed to bear against element 10.

Regarding claim 31, the Turnquist et al. reference discloses the axial direction of the axially symmetrical components, the second sealing device is directly contiguous to the first sealing device (Fig. 1).

Regarding claim 32, the Turnquist et al. reference discloses the first sealing device forming a supporting plate for the bristle elements of the second sealing device (Fig. 1).

Regarding claim 33, the Turnquist et al. reference, discloses a second one (e.g. 12) of the axially symmetrical components surrounding a first one (e.g. 10) of the axially symmetrical components.

Regarding claim 34, the Turnquist et al. reference discloses the second one of the axially symmetrical components being made up of a plurality of segments (Col. 3, Line 66 - Col. 4, Line 2).

Regarding claim 35, the Turnquist et al. reference discloses a first one (e.g. 12) of the axially symmetrical components comprising a housing of a gas turbine (Col. 3, Lines 57-61), and the second one (e.g. 14) of the axially symmetrical component includes a guide vane ring (e.g. 14) of a gas turbine having a plurality of vane segments (Col. 3, Line 66 - Col. 4, Line 2), the first sealing device and the second sealing device being positioned between the housing and the vane segments (Fig. 1, e.g. annularly) in order to seal a gap (e.g. gap between element 14 and 10).

Regarding claim 36, the Turnquist et al. reference discloses the separation site having an overlapping form (Col. 4, Lines 54-66). Note that each end of each segment of the first sealing device will overlap circumferentially with the next segment.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 26, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Turnquist et al. in view of Beichl et al. (US Pub. No. 2004/0188943 A1).

Regarding claim 26, the Turnquist et al. reference discloses the invention substantially as claimed in claim 25.

However, the Turnquist et al. reference fails to explicitly disclose the bristle element being wound around a guide element and being secured by a clamping element.

The Beichl et al. reference, a brush seal for a turbomachine, discloses that a brush seal can be welded (Fig. 7) or wound around a guide element (Fig. 5, 20) and secured by a clamping element (17).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a guide element and a clamping element to the Turnquist et al. reference in view of the teachings of the Beichl et al. reference in order to provide a frictional variant (Beichl et al., Para. [0021]).

Regarding claim 28, the Turnquist et al. reference discloses the invention substantially as claimed in claim 27.

However, the Turnquist et al. reference fails to explicitly disclose the bristle element being wound around a guide element.

The Beichl et al. reference, a brush seal for a turbomachine, discloses that a brush seal can be welded (Fig. 7) or wound around a guide element (Fig. 5, 20).



It would have been obvious to one of ordinary skill in the art at the time of the invention to provide a guide element to the Turnquist et al. reference in view of the teachings of the Beichl et al. reference in order to provide a frictional variant (Beichl et al., Para. [0021]).

Regarding claim 29, the Turnquist et al. reference, as modified in claim 28, discloses the unattached ends of the bristle elements engaging the second one (Turnquist et al., e.g. 28) of the axially symmetrical components.

### ***Response to Arguments***

7. Applicant's arguments filed 6/28/07 have been fully considered but they are not persuasive.

With regards to the applicant's argument of the 35 U.S.C. 112, first paragraph rejection, the argument is not persuasive because, as stated above, the closest descriptions of the two types are in paragraphs [0031] and [0032] which hint that an open-type design has a fastening ring which is a single piece with the housing. Neither paragraph discloses a clear description of what a closed-type or an open-type brush seal is. The paragraphs only suggest that an open-type brush seal "may be bent upwards in the manner of a split ring". This does not require the open-type brush seal to be split and does not distinguish an open-type brush seal from a closed-type brush seal.

With regards to the applicant's argument of the 35 U.S.C. 112, second paragraph rejection, the argument is not persuasive because two components cannot be described

as being "axially symmetrical". The applicant argues that "axially symmetrical" is the same as "rotationally symmetrical"; however, this phrase is still unclear to the examiner. The examiner is making an inquiry as to whether the applicant is trying to claim that the cross section of the two components is axially symmetrical about an axis.

With regards to the applicant's argument of the 35 U.S.C. 102(b) rejection, the argument is not persuasive because the applicant is considering how element 38 is formed. The end product 38 has segments, which defines multiple splits and meets the limitations of the claim. The examiner would like to note that there is no Para. [0039].

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

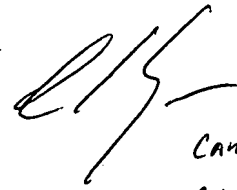
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gilbert Y. Lee whose telephone number is 571-272-5894. The examiner can normally be reached on 8:00 - 4:30, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patricia L. Engle can be reached on (571)272-6660. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GL  
September 14, 2007

  
Carlos Lugo  
Primary Examiner  
AY 3676

For Patricia Engle  
Supervisory Examiner  
Tech. Center 3600